

STATE OF IDAHO  
Department of Fish and Game

Joseph C. Greenley, Director

Quarterly Project Progress Report

MACKAY HATCHERY SPRING CHINOOK

Project No. 88E22030

Contract No. 03-78-M02-32

Period Covered: October 1, 1977 to December 31, 1977

Columbia River Fisheries Development Program

September, 1978

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### Mackay Hatchery Spring Chinook

#### Background

After one year of spring chinook salmon rearing, we have identified problems with egg incubation, sunburning, excess growth, and males maturing after one year in the hatchery. High mortality during September and October was due to these mature males and some was from sunburning and enteric redmouth.

The Rapid River stock, received originally as eggs, were running 18.6 per pound the first of October.

We received from Sandpoint Hatchery 250,000 spring chinook fry of the same year class, and these fish were 48.0 per pound. Being held at a cold water station until April made them considerably smaller. They were held in small raceways until late summer and transferred to large raceways. They did not sunburn until we moved them into large raceways.

#### Observations

Fish started from eggs and held for 1-1/2 years are definitely going to exceed the recommended maximum size smolt, which is about 14 per pound. Due to high mortality on mature males, this 1-1/2-old smolt started at Mackay is going to be very expensive and of poor quality.

We have two alternatives to work on for a successful spring Chinook program. First, we can try a 6-month-old, smolt-subsmolt release starting with the earliest eggs available and release the next spring. The size of these fish would be approximately 55 to 35 per pound.

Second, we can ship the eggs to a cold water station for approximately eight months and transfer to Mackay for approximately ten months and have a desirable size smolt of approximately 20 per pound for April release. The eggs from this year's run was shipped to Mullan to be hatched and reared until late spring.

We could see from the size of the fish that we would exceed poundage to hold safely until spring. So a release of 250,200 smolts at 18 per pound was made into the Salmon River during November.

At the end of this quarter the fish started here from eggs were 13.8 per pound. The fish started at Sandpoint were 36.8 per pound.

The estimated number of fish on hand at start of this quarter were 1,336,078; end of quarter, 1,007,693. We released 250,200, showing a mortality of 78,178.

Our disease laboratory confirmed ERM, bacterial gill disease and kidney disease; also mortality from sunburn and mature males.

Prepared by:

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